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PAPERS FROM THE HOPKINS STANFORD GALAPAGOS EXPEDITION, 1898-1899.

V.

ENTOMOLOGICAL RESULTS (5):

THYSANURA AND TERMITIDÆ.

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Two species of *Thysanura* were collected on the Galapagos Islands, and one, in considerable numbers, on Clipperton Island. All appear to be new, but belong to genera of world-wide distribution. One of the species from the Galapagos Islands is of very large size. The species from Clipperton Island is interesting on account of lacking a curious character present in many, if not all, of the other species of the genus. The Collembola do not appear to have been collected, although doubtless fairly abundant on the islands.

Family LEPISMIDÆ.

LEPISMA GALAPAGOENSIS sp. nov.

Length 20 mm., width of prothorax 5 mm. Body above and below covered with dark steel blue scales; antennæ and cerci annulate; legs pale, yellowish on tarsi. Body of usual shape and

appearance. Head broad, with 14 tufts of hair seen from above as follows: one in front of each eye, one behind each antenna, two above base of each antenna, one in front of each antenna, and two each side on anterior margin; below on clypeus there are other

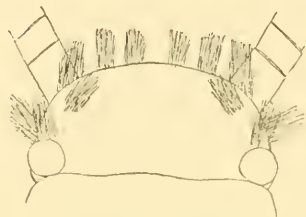


FIG. 47. *Lepisma galapagoensis*, head.

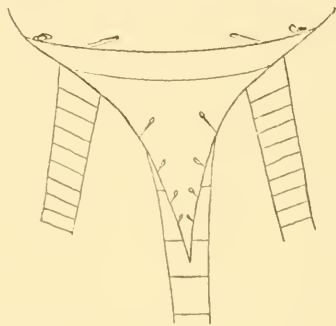


FIG. 48. *Lepisma galapagoensis*, tail.



FIG. 49. *Lepisma galapagoensis*, maxillary palp.



FIG. 50. *Lepisma galapagoensis*, labial palp.

tufts. Maxillary palpi with intermediate joint longest, penultimate nearly twice as long as the last. Labial palpi with last joint foot-shaped. The antennæ are much longer than the body, the cerci about length of body; telson slender and acutely pointed over base of median cercus. Legs with many hairs and spine-like bristles. Thorax with spine-like bristles along sides. On the meso- and metathorax there are on each side margin five roundish groups of yellowish pores, on the hind margin about half way from middle to side is an oblique row of them, and there is a roundish group nearer to side. On the posterior margin of each abdominal segment are two oblique rows of pores, one near edge of body, the other about one-third way from edge to median line; these rows have their inner ends more forward than the outer ends. On each ventral segment there are each side two tufts of yellowish hairs or bristles, besides the appendage.

Several specimens from Hood Island in May. The largest species known to me.

LEPISMA INSULARIS sp. nov.

Length 7 mm., width of prothorax 1.4 mm. Body with light brownish scales, some specimens show the abdomen more or less banded; legs pale, with many hairs; antennæ and cerci pale, but more or less distinctly annulate with dark. Head more conical than preceding species; there is a crest of hairs over base of each antenna, and a few scattered groups on anterior margin. The maxillary palpi have the last joint a little longer than preceding joint, the intermediate joint a little longer than any of the others. The labial palpi have the last joint obscurely triangular. The antennæ are about the length of the body, and the cerci are plainly shorter than body. The telson is broadly triangular and rounded at tip. The legs have the usual stout spur at upper tip of each tibia. There are no distinct groups of pores on the thoracic segments, but on the abdominal ones there is on each side near the edge of body an oblique row of three pores.

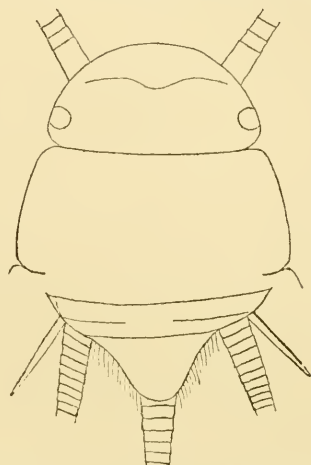


FIG. 51. *Lepisma insularis*, head and tail.

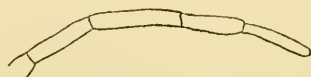


FIG. 52. *Lepisma insularis*, maxillary palp.

Several specimens from Narboro Island and one from Tagus Cove, Albemarle Island, all in January.

Family MACHILIDÆ.

MACHILIS MUTICA sp. nov.

Length when extended 7 mm. Body clothed above with dark scales, some paler patches on the thorax; pale beneath; legs and palpi pale; antennæ annulate; cerci dark above, pale beneath; abdominal appendages pale. Body curved, the head bent down. Eyes united for only a short distance, below each eye is a white hour-glass figure, the anterior end rather larger but shorter than posterior end. Between

the bases of antennæ is a median brown spot. The last joint of maxillary palpi is plainly shorter than the penultimate, which is about equal to the one preceding it; the basal joints are marked above with



FIG. 53. *Machilis mutica*, head.

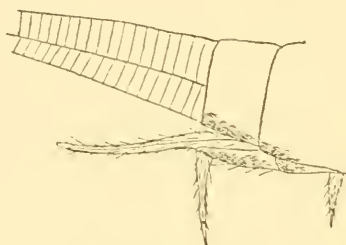


FIG. 54. *Machilis mutica*, end of body.

brown. Antennæ once and one-half length of body; the basal joint about twice as long as wide; beyond the joints are of the usual curious arrangement; first several hard dark rings alternate with pale, then three dark rings in a group, then four, then six, then eight, then ten or twelve, and keeping at about ten to sixteen to the tip. Median cercus as long as body, lateral cerci less than one-third the length of the median. There does not appear to be any trace of the appendages to the second and third coxæ, found in other species.

A number of specimens from Clipperton Island in November.

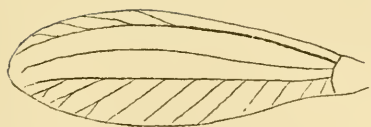
Family TERMITIDÆ.

Of the two species of Termites collected both appear to be distinct from any previously described. When the species from the Central American region are more full known it may be found that they also occur there. The genus *Calotermes* is found throughout tropical countries.

CALOTERMES GALAPAGOENSIS sp. nov.

Length, with wings, 9.5 mm.; body 5 mm.

Yellowish brown; mouthparts, antennæ, legs and ventral region paler; wings nearly hyaline, subcostal vein and its branches brown, costal area slightly infusate. Head quite broad, eye situate before the middle, ocelli present. Prothorax much broader than long, scarcely narrower than the head, rounded behind, with a median pale line above. Abdomen nearly as long as head and thorax together. Wings much longer than body, quite broad, pointed at tip; the sub-

FIG. 55. *Calotermes galapagoensis*, wing.FIG. 56. *Calotermes galapagoensis*, head and pronotum.

costal vein does not branch till beyond the middle of wing, median vein about half-way between the subcostal and submedian with the usual branches simple, except those near the apex which are forked.

Several specimens from Wenman Island in December.

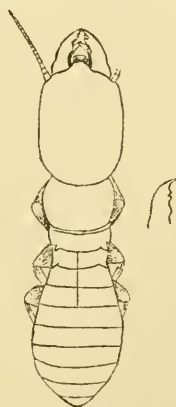
CALOTERMES PACIFICUS sp. nov.

Length, with wings, 11 mm.; body 8 mm.

Pale yellowish brown; beneath paler, as also on legs and antennæ; wings hyaline, costal and subcostal veins with the branches brown. Head not very large, eyes at about middle, ocelli present. Prothorax nearly twice as broad as long, concave in front, fully as broad as head. Meso- and metathorax much longer than prothorax, and fully as broad. Abdomen plainly longer than head and thorax together. Wings not greatly longer than the body, moderately broad, branches before middle and before end of costal, the median vein is about half-way between the subcostal and submedian veins, branched near the tip and connected to subcostal, the submedian has most of its apical branches forked, those toward base are very oblique.

Soldier—Length 12 mm.

Head castaneous, darker in front than behind; mandibles black; rest of body, legs and antennæ pale yellowish. Head about once and one-third longer than broad, sides slightly convex, equally broad in front and behind, somewhat flattened above, near anterior margin slightly concave above the middle. Mandibles stout and large, with two small teeth toward tip and a larger one basad, on outer side at base there is a hump. Antennæ slender, about as long as width of the head, 14-jointed, the third joint plainly longer than any of the others, also darker. Prothorax plainly broader than long, fully as large as meso- and metathorax together, the latter but slightly sepa-

FIG. 57. *Calotermes pacificus*, soldier and mandible.

rated from each other, and each with a small projection or tubercle near each posterior outer corner; abdomen short, in the middle a little broader than the head.

A number of specimens from Albemarle Island in December and February, and from Narboro Island in January. Some soldiers are plainly smaller than others and have their heads a trifle shorter.